

CLAIMS

What is claimed is:

1. An apparatus for spreading an article of laundry from a load of articles of laundry, the apparatus comprising:
 - a frame;
 - a clamp operable to grab the article of laundry;
 - a pivot joint connected with the clamp and the frame; and
 - a drive connected with the clamp, the drive connected so as to drive the clamp downward about the pivot joint;
wherein at least a portion of the article of laundry is forced away from the clamp in response to the clamp being driven.
2. The apparatus of Claim 1 wherein an area below at least a portion of the travel of the clamp is free of obstructions such that the article of laundry extends away from the clamp as a result of the clamp being driven downward.
3. The apparatus of Claim 1 wherein the clamp comprises at least two clamps positioned to grab the article of laundry at two locations, respectively.
4. The apparatus of Claim 1 wherein the pivot joint is operable to allow rotation between 70 and 135 degrees.
5. The apparatus of Claim 1 wherein the combination of gravity and movement of the clamp with the article of laundry is operable to extend the article of laundry outward from the clamp in a substantially flat position.
6. The apparatus of Claim 1 further comprising a lift operable to position the article of laundry in a horizontal position adjacent the clamp, the clamp grabbing the article of laundry from the lift, the clamp operable to grab a random location on the article of laundry.

7. The apparatus of Claim 1 further comprising a conveyor positioned below the pivot joint such that the clamp deposits the article of laundry on the conveyor after the clamp is driven downward.

8. A method for spreading an article of laundry from a load of articles of laundry, the method comprising:

- (a) clamping a article of laundry;
- (b) rotating the article of laundry about an axis spaced away from the article of laundry, the rotation being at least in part downward; and
- (c) flattening the article of laundry in response to the rotation.

9. The method of Claim 8 further comprising:

- (d) avoiding contact with the article of laundry during (b) such that the article of laundry extends away from a clamp as a result of the clamp being rotated.

10. The method of Claim 8 wherein (b) comprises rotating the article of laundry 70 and 135 degrees.

11. The method of Claim 8 wherein (b) comprises extending the article of laundry outward in a substantially flat position.

12. The method of Claim 8 further comprising:

- (d) lifting the article of laundry to a substantially horizontal position along a least a portion of the article of laundry;
wherein (a) comprises clamping the article of laundry while in the substantially horizontal position.

13. The method of Claim 8 further comprising:

(d) releasing the article of laundry on a surface with the article of laundry in a flat position after the rotation of (b).

14. An apparatus for spreading a article of laundry from a load of articles of laundry, the apparatus comprising:

a first conveyor;

a second conveyor spaced from the first conveyor by a slot, the slot narrow such that the article of laundry is able to rest on both the first and second conveyors at a same time; and

a clamp positioned to move in the slot between the first and second conveyors.

15. The apparatus of Claim 14 further comprising a sensor adjacent the first conveyor, the sensor positioned to detect a trailing corner of the article of laundry on the first conveyor, the clamp responsive to the sensor.

16. The apparatus of Claim 15 wherein the first conveyor is operable to cease conveying in response to the sensor such that the trailing corner is on the first conveyor and at least another portion of the article of laundry is on the second conveyor.

17. The apparatus of Claim 14 wherein the clamp is operable to grab a first edge of the article of laundry and move the edge closer to one side of the second conveyor.

18. The apparatus of Claim 17 wherein a second edge is positioned more perpendicular to a direction of travel of the second conveyor in response to the movement by the clamp.

19. The apparatus of Claim 14 wherein the first and second conveyors are aligned to convey the article of laundry in a same direction at a same level.

20. A method for spreading an article of laundry from a load of articles of laundry, the method comprising:

- (a) conveying a article of laundry on a first conveyor;
- (b) conveying the article of laundry onto a second conveyor;
- (c) clamping a first edge of the article of laundry between the first and second conveyors; and
- (d) moving the clamped first edge of the article of laundry closer to a side of the second conveyor such that a second edge of the article of laundry is more perpendicular to a direction of travel of the second conveyor.

21. The method of Claim 20 further comprising:

- (e) sensing a trailing portion of the article of laundry on the first conveyor; and
- (f) slowing conveyance of the first conveyor in response to the sensing of (c) and prior to performing (c) and (d).

22. The method of Claim 20 wherein (a) and (b) convey the article of laundry in a substantially same direction.

23. An apparatus for spreading an article of laundry from a load of articles of laundry, the apparatus comprising:

- a first conveyor;
 - a second conveyor disposed downstream from the first conveyor;
 - at least two jaw points positioned above the first conveyor and operable to press a first portion of the article of laundry against the first conveyor; and
 - a blower directed towards the second conveyor;
- wherein the second conveyor is operable to continue movement with a second portion of the article of laundry on the second conveyor and while the first portion of the article of laundry is held by the jaw points against the first conveyor; and

wherein the blower is operable to direct air towards the article of laundry while the second portion of the article of laundry is on the second conveyor and the first portion of the article of laundry is held by the jaw points against the first conveyor.

24. The apparatus of Claim 23 wherein the first conveyor and second conveyor convey in a same direction, the second conveyor having a second top surface lower than a first top surface of the first conveyor, the first top surface at an end of the first conveyor and the second top surface at a beginning of the second conveyor.

25. The apparatus of Claim 23 further comprising a sensor directed towards the first conveyor adjacent to a point where the jaw points are operable to contact the first conveyor.

26. The apparatus of Claim 23 wherein the blower comprises a plurality of blowers directed towards the second conveyor from different directions.

27. The apparatus of Claim 23 wherein the at least two jaw points are operable to lift from the first conveyor such that the article of laundry is conveyed by the second conveyor off of the first conveyor.

28. A method for spreading an article of laundry from a load of articles of laundry, the method comprising:

(a) positioning the article of laundry on both first and second conveyors, the second conveyor downstream from the first conveyor;

(b) clamping the article of laundry with a first portion of the article of laundry on the first conveyor;

(c) continuing to convey with the second conveyor while the article of laundry is clamped; and

- (d) blowing at a second portion of the article of laundry while the article of laundry is clamped, the second portion on the second conveyor.
29. The method of Claim 28 wherein (b) comprises pressing at least two points of a trailing edge of the article of laundry against the first conveyor.
30. The method of Claim 28 further comprising:
- (e) sensing a trailing edge of the article of laundry on the first conveyor;
- wherein (b) is performed in response to (e).
31. The method of Claim 28 wherein (d) comprises blowing the second portion from a plurality of directions.
32. The method of Claim 28 further comprising:
- (e) releasing the clamping of (b); and
- (f) conveying the article of laundry off of the first conveyor and downstream on the second conveyor.
33. An apparatus for spreading an article of laundry from a load of articles of laundry, the apparatus comprising:
- a frame;
- a first clamp operable to grab the article of laundry;
- a pivot joint connected with the clamp and the frame;
- a drive connected with the clamp, the drive connected so as to drive the clamp downward about the pivot joint, the driving operable to force at least a portion of the article of laundry away from the clamp;
- a first conveyor positioned below the clamp and operable to receive the article of laundry from the first clamp;

a second conveyor spaced from the first conveyor by a slot, the slot narrow such that the article of laundry is able to rest on both the first and second conveyors at a same time;

a second clamp positioned to move in the slot between the first and second conveyors and adjacent a top portion of the first and second conveyors, the second clamp operable to square the article of laundry to a direction of travel on the second conveyor in response to clamping and moving a first edge of the article of laundry closer to a side of the second conveyor;

a third conveyor disposed downstream from the second conveyor;

at least two jaw points positioned above the second conveyor and operable to press a trailing portion of the article of laundry against the second conveyor; and

a blower directed towards the third conveyor;

wherein the third conveyor is operable to continue movement with a leading portion of the article of laundry on the third conveyor and while the trailing portion of the article of laundry is held by the jaw points against the second conveyor; and

wherein the blower directs air towards the article of laundry while the leading portion of the article of laundry is on the third conveyor and the trailing portion of the article of laundry is held by the jaw points against the second conveyor.